IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

MONTEREY RESEARCH, LLC, Plaintiff, v. BROADCOM INCORPORATED, BROADCOM CORPORATION, AND BROADCOM PTE. LTD., Defendants.	Civil Action No. 6:21cv542 **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Monterey Research, LLC ("Monterey"), for its Complaint for Patent Infringement against defendants Broadcom Incorporated ("Broadcom Inc."), Broadcom Corporation, ("Broadcom Corp."), and Broadcom Pte. Limited ("Broadcom Ltd.") (collectively, "Broadcom" or "Broadcom Defendants") alleges as follows:

INTRODUCTION

1. Monterey is an intellectual property and technology licensing company. Monterey's patent portfolio comprises over 1,600 active and pending patents worldwide, including approximately 1,200 active United States patents. Monterey's patent portfolio stems from technology developed from a number of leading high-technology companies, including Cypress Semiconductor Corporation. Those innovations have greatly enhanced the capabilities of computer systems, increased electronic device processing power, and reduced electronic device power consumption. Among other things, those inventions produced significant technological advances, including smaller, faster, and more efficient semiconductors and integrated circuits.

2. The Broadcom Defendants, jointly and severally, have infringed and continue to infringe Monterey's patents. Moreover, despite Monterey notifying them of infringement, the Broadcom Defendants have thus far refused to license those patents or even engage in discussions with Monterey. Instead, they have continued to make, use, sell, offer to sell, and/or import Monterey's intellectual property within the United States without Monterey's permission.

NATURE OF THE ACTION

3. This action arises under 35 U.S.C. § 271 for Broadcom's infringement of Monterey's United States Patent Nos. 6,573,753 ("the '753 patent"); 6,979,640 ("the '640 patent"); 7,405,987 ("the '987 patent"); 7,512,873 ("the '873 patent"); 7,895,387 ("the '387 patent"); 8,037,249 ("the '249 patent"); 8,694,776 ("the '776 patent"); and 9,767,303 ("the '303 patent") (collectively, "the Patents-in-Suit").

THE PARTIES

4. Plaintiff Monterey is a Delaware limited liability company with offices in New Jersey and California.

5. Defendant Broadcom Inc. is a Delaware corporation with a regular and established place of business at 2901 Via Fortuna Drive, Austin, Texas 78746. Broadcom Inc. is a publicly traded company. Broadcom Inc. wholly owns and/or controls subsidiaries LSI Corporation, Avago Technologies U.S. Inc., and Avago Technologies Wireless (U.S.A.) Manufacturing LLC.

6. Defendant Broadcom Corp. is a California corporation with a regular and established place of business at 2901 Via Fortuna Drive, Austin, Texas 78746. Broadcom Corp. is a subsidiary of Broadcom Inc. Broadcom Corp. may be served through its registered agent for service: Corporation Service Company, 211 E. 7th Street Suite 620 Austin, TX 78701.

7. Defendant Broadcom Ltd. is a company organized under the laws of the Republic of Singapore, with a place of business at 1 Yishun Avenue 7, Singapore 768923. Broadcom Ltd. was

formerly known as Broadcom Limited, and Broadcom Inc. is the successor to Broadcom Limited. Broadcom Ltd. is a wholly-owned subsidiary of Broadcom Inc.

8. Broadcom Inc. exercises control over Broadcom Corp. and Broadcom Ltd., and acts collectively with those entities to infringe Monterey's patents by making, using, selling, offering for sale, and/or importing products (including importing products made by a patented process) throughout the United States, including within this District. Broadcom's customers incorporate those products into downstream products that are made, used, sold, offered for sale, and/or imported throughout the United States, including within this District. Those downstream products include, but are not limited to, smartphones, tablets, televisions, smartwatches, and other products that include Broadcom semiconductor devices and integrated circuits.

JURISDICTION AND VENUE

9. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a) at least because this action arises under the patent laws of the United States, including 35 U.S.C. § 271 *et seq*.

10. This Court has personal jurisdiction over each Broadcom Defendant in this action.

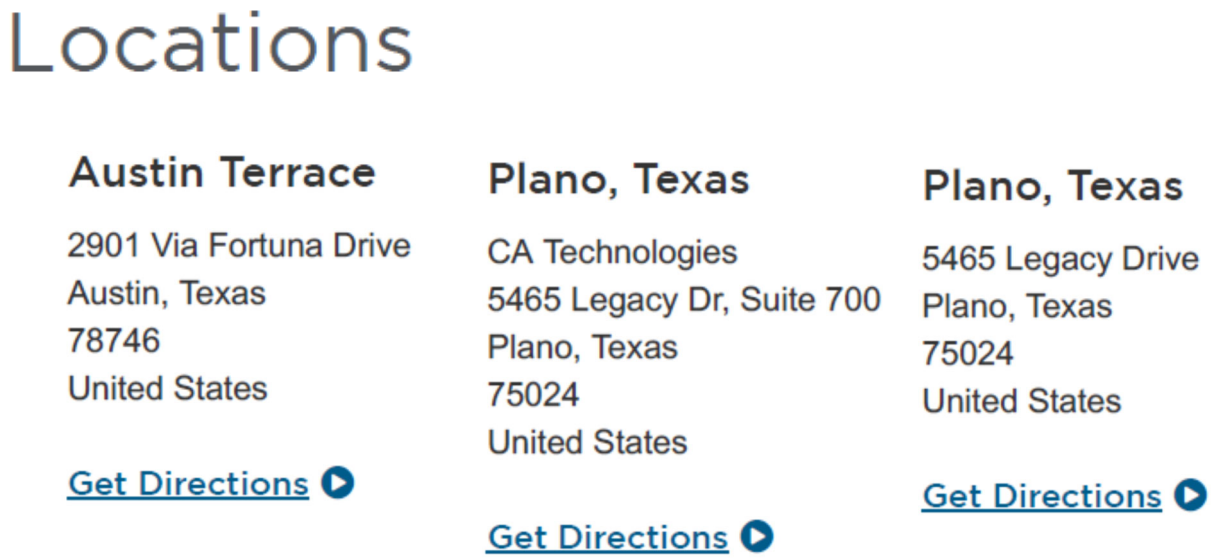
11. This Court has personal jurisdiction over Broadcom Inc. and Broadcom Corp. at least because each has a regular and established place of business in the State of Texas. Broadcom Corp. also has a registered agent for service of process in Texas. In addition, Broadcom Inc. and Broadcom Corp. have each committed, aided, abetted, contributed to and/or participated in the commission of acts of infringement giving rise to this action within the State of Texas, including in this District and elsewhere, by, *inter alia*, directly and/or indirectly making, using, selling, offering for sale, importing products (including importing products made by a patented process) and/or practicing methods that practice one or more claims of the Patents-in-Suit. Furthermore, Broadcom Inc. and Broadcom Corp. have transacted and conducted business in the State of Texas, including in this District and elsewhere,

and with Texas residents by making, using, selling, offering to sell, and/or importing (including importing products made by a patented process) products and instrumentalities that practice one or more claims of the Patents-in-Suit. Among other things, Broadcom Inc. and Broadcom Corp., directly and/or through subsidiaries, affiliates, and/or intermediaries (including distributors, retailers, and others), use, sell, ship, distribute, import into, offer for sale, and/or advertise or otherwise promote their products throughout the United States, including in the State of Texas. *See, e.g.*, www.broadcom.com. Moreover, Broadcom Inc. and Broadcom Corp. have purposefully and voluntarily placed their infringing products into the stream of commerce with the expectation that those products will be purchased and used by customers and/or consumers in the State of Texas, including in this District. At least for those reasons, Broadcom Inc. and Broadcom Corp. have the requisite minimum contacts within the forum such that the exercise of jurisdiction over Broadcom Inc. and Broadcom Corp. would not offend traditional notions of fair play and substantial justice.

12. This Court has personal jurisdiction over Broadcom Ltd. at least because it has committed, aided, abetted, contributed to and/or participated in the commission of acts of infringement giving rise to this action within the State of Texas, including in this District and elsewhere, by, *inter alia*, directly and/or indirectly making, using, selling, offering for sale, importing products and/or practicing methods that practice one or more claims of the Patents-in-Suit. Furthermore, Broadcom Ltd. transacted and conducted business in the State of Texas, including in this District and elsewhere, and with Texas residents with respect to the products and instrumentalities accused of infringing the Patents-in-Suit. Among other things, Broadcom Ltd., directly and/or through subsidiaries, affiliates, and/or intermediaries (including distributors, retailers, and others), uses, sells, ships, distributes, imports into, offers for sale, and/or advertises or otherwise promotes its products throughout the United States, including in the State of Texas. *See, e.g.*,

www.broadcom.com. Moreover, Broadcom Ltd. has purposefully and voluntarily placed its infringing products into the stream of commerce with the expectation that those products will be purchased and used by customers and/or consumers in the State of Texas, including in this District. In addition, or in the alternative, this Court has personal jurisdiction over Broadcom Ltd. under Federal Rule of Civil Procedure 4(k)(2). At least for those reasons, Broadcom Ltd. has the requisite minimum contacts within the forum such that the exercise of jurisdiction over Broadcom Ltd. would not offend traditional notions of fair play and substantial justice.

13. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b). Broadcom has transacted and continues to transact business in this District. Broadcom also has committed and continues to commit acts of direct and/or indirect infringement in this District by, among other things, making, using, offering to sell, selling, and importing products that infringe the Asserted Patents. Broadcom Inc. and Broadcom Corp. have regular and established places of business in this District, including at least at 2901 Via Fortuna Dr., Austin, Texas 78746 (Travis County).



(https://www.broadcom.com/company/contact#locations.) Broadcom Ltd. is a foreign corporation that has committed acts of infringement in this District, and venue is proper in any district in which Broadcom Ltd. is subject to personal jurisdiction. By way of further example, Broadcom develops certain infringing products within this District, such as, for example, physical layer products; manages certain enterprise customer accounts, including accounts in the server, store, and networking product categories, from this District, including its Austin, Texas location; and employs full-time personnel such as sales personnel and engineers in this District, including in Austin, Texas. Venue is further proper based on the facts alleged in the preceding paragraphs, which Monterey incorporates by reference as if fully set forth herein.

THE PATENTS-IN-SUIT

14. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

A. U.S. Patent No. 6,573,753

15. The '753 patent, titled "Microcontroller Input/Output Nodes with Both Programmable Pull-Up and Pull-Down Resistive Loads and Programmable Drive Strength," was duly and properly issued by the USPTO on June 3, 2003. A true and correct copy of the '753 patent is attached hereto as Exhibit A.

16. Monterey is the owner and assignee of the '753 patent; owns all right, title, and interest in the '753 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

B. U.S. Patent No. 6,979,640

17. The '640 patent, titled "Contact Structure and Method of Making the Same" was duly and properly issued by the USPTO on December 27, 2005. A true and correct copy of the '640 patent is attached hereto as Exhibit B.

18. Monterey is the owner and assignee of the ’640 patent; owns all right, title, and interest in the ’640 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

C. U.S. Patent No. 7,405,987

19. The ’987 patent, titled “Low Voltage, High Gain Current/Voltage Sense Amplifier with Improved Read Access Time” was duly and properly issued by the USPTO on July 29, 2008. A true and correct copy of the ’987 patent is attached hereto as Exhibit C.

20. Monterey is the owner and assignee of the ’987 patent; owns all right, title, and interest in the ’987 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

D. U.S. Patent No. 7,512,873

21. The ’873 patent, titled “Parallel Processing Apparatus Dynamically Switching Over Circuit Configuration” was duly and properly issued by the USPTO on March 31, 2009. A true and correct copy of the ’873 patent is attached hereto as Exhibit D.

22. Monterey is the owner and assignee of the ’873 patent; owns all right, title, and interest in the ’873 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

E. U.S. Patent No. 7,895,387

23. The ’387 patent, titled “Devices and Methods for Sharing Common Target Device with Two Different Hosts According to Common Communication Protocol,” was duly and properly issued by the USPTO on February 22, 2011. A true and correct copy of the ’387 patent is attached hereto as Exhibit E.

24. Monterey is the owner and assignee of the ’387 patent; owns all right, title, and interest in the ’387 patent; and holds the right to sue and recover damages for infringement thereof, including

past infringement.

F. U.S. Patent No. 8,037,249

25. The ’249 patent, titled “Asynchronous Memory Access Queuing,” was duly and properly issued by the USPTO on October 11, 2011. A true and correct copy of the ’249 patent is attached hereto as Exhibit F.

26. Monterey is the owner and assignee of the ’249 patent; owns all right, title, and interest in the ’249 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

G. U.S. Patent No. 8,694,776

27. The ’776 patent, titled “Authenticated Memory and Controller Slave,” was duly and properly issued by the USPTO on April 8, 2014. A true and correct copy of the ’776 patent is attached hereto as Exhibit G.

28. Monterey is the owner and assignee of the ’776 patent; owns all right, title, and interest in the ’776 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

H. U.S. Patent No. 9,767,303

29. The ’303 patent, titled “Authenticated Memory and Controller Slave,” was duly and properly issued by the USPTO on September 19, 2017. A true and correct copy of the ’303 patent is attached hereto as Exhibit H.

30. Monterey is the owner and assignee of the ‘303 patent; owns all right, title, and interest in the ’303 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

FACTUAL BACKGROUND

31. Monterey incorporates by reference the preceding paragraphs as if fully set forth

herein.

32. The Patents-in-Suit stem from the research and design of innovative and proprietary technology developed by leading high-technology companies, including Cypress Semiconductor Corporation ("Cypress"). Cypress is an American multinational company and pioneer of cutting-edge semiconductor technology. Founded in 1982, Cypress has made substantial investments in researching, developing, and manufacturing high-quality semiconductor devices, integrated circuits, and products containing the same.

33. The Patents-in-Suit are directed to inventive technology relating to semiconductor devices, integrated circuits, and/or products containing the same.

34. The Broadcom Defendants work closely with their customers, OEMs, foundry suppliers, distributors, and/or other third parties to make, use, sell, offer to sell, and/or import semiconductor devices, integrated circuits, and/or products containing the same. Among other things, the Broadcom Defendants optimize their manufacturing process for their customers and optimize their products for integration into downstream products. The Broadcom Defendants' affirmative acts in furtherance of the manufacture, use, sale, offer to sell, and importation of their products in and/or into the United States include, but are not limited to, any one or combination of: (i) designing specifications for manufacture of their products; (ii) collaborating on, encouraging, and/or funding the development of processes for the manufacture of their products; (iii) soliciting and/or sourcing the manufacture of their products; (iv) licensing, developing, and/or transferring technology and know-how to enable the manufacture of their products; (v) enabling and encouraging the use, sale, or importation of their products in the United States; and (vi) advertising their products and/or downstream products incorporating them in the United States.

35. Broadcom also provides marketing and/or technical support services for its products

from its facilities in the United States. For example, Broadcom maintains a website that advertises its products, including identifying the applications for which they can be used and specifications for its products. *See, e.g.*, www.broadcom.com. Broadcom makes available user manuals, product documentation, and other materials related to its products to residents of this District and to the United States as a whole. For example, Broadcom provides development content for specific chip products and applications; catalogs of hardware, software, and tools documentation; relevant support articles; various software code and tools; and case-specific technical assistance.

BROADCOM'S PRE-SUIT KNOWLEDGE OF MONTEREY'S PATENTS AND CHARGE OF INFRINGEMENT

36. Before filing this action, Monterey, through its agent IPValue Management, Inc. ("IPValue"), notified Broadcom about the Patents-in-Suit and Broadcom's infringement thereof. Among other things, Monterey identified the Patents-in-Suit to Broadcom; alleged that Broadcom infringed the Patents-in-Suit, including identifying exemplary infringing products; sought to engage Broadcom in discussions regarding Broadcom's use of Monterey's intellectual property (including the Patents-in-Suit); and offered to license the Patents-in-Suit to Broadcom. For example:

a. On May 23, 2018, Monterey sent a letter to Broadcom, notifying Broadcom of its infringement of certain Monterey patents, including the '753 and '640 patents. Among other things, Monterey identified representative Broadcom products that utilize those patents, expressly charged that Broadcom and its customers infringed those patents, and explained that Broadcom required a license from Monterey. Monterey requested a meeting with Broadcom.

b. Broadcom, however, did not respond to Monterey's May 23, 2018 letter.

c. On July 11, 2018, Monterey sent a follow-up letter to Broadcom. That letter attached Monterey's May 23, 2018 letter; identified Broadcom products that were covered by

Monterey's patents; and requested a meeting with Broadcom to further discuss Broadcom's infringement.

d. On July 24, 2018—two weeks later—Broadcom sent an e-mail acknowledging its receipt of the July 11, 2018 letter and stated that it would review the issues raised therein. Broadcom, however, did not provide any availability for Monterey's requested meeting.

e. On August 1, 2018, Broadcom replied that it was premature to meet and, once again, did not provide any availability for Monterey's requested meeting.

f. On September 6, 2018, Broadcom stated that it would not engage in any meaningful discussions concerning Monterey's patents and would not proceed with negotiations.

g. On September 13, 2018, Monterey sent a follow-up e-mail to Broadcom, requesting that the discussions proceed, since Broadcom still had not yet responded to Monterey's infringement allegations. As with Monterey's prior correspondence, Broadcom did not respond to Monterey's September 13, 2018 e-mail.

h. On September 28, 2018, Monterey sent another e-mail requesting that Broadcom proceed with potential licensing discussions of Monterey's patents.

i. On November 9, 2018, Broadcom confirmed that it was not interested in engaging in discussions.

j. On February 6, 2019, Monterey sent another letter to Broadcom following up on prior communications and notifying Broadcom of its infringement of additional Monterey patents. Among other things, Monterey identified representative Broadcom products that utilize those patents and explained that Broadcom required a license from Monterey.

k. Broadcom, however, did not respond to Monterey's February 6, 2019 letter.

l. On February 15, 2019, Monterey sent Broadcom a letter suggesting a meeting to discuss Broadcom's infringement.

m. On June 4, 2019, Monterey sent another e-mail including an article in *Business Wire* discussing a recent license Monterey had granted to Samsung, and inquiring if Broadcom was willing to engage in good-faith discussions to acquire a license to Monterey's patents.

n. Broadcom did not respond to the June 4, 2019 e-mail.

o. On May 4, 2021, Monterey sent another letter to Broadcom following up on prior communications and notifying Broadcom of its infringement of additional Monterey patents, including the '987, '873, '387, '249, '776, and '303 patents. Among other things, Monterey identified representative Broadcom products that utilize those patents, expressly charged that Broadcom and its customers infringed those patents, and explained that Broadcom required a license from Monterey. Monterey again requested a meeting with Broadcom.

p. Broadcom, however, did not respond to Monterey's May 4, 2021 letter.

q. Despite the numerous letters and related prior and subsequent communications, at no time prior to Monterey's filing of this Complaint did Broadcom deny infringing any element of any claim of the Patents-in-Suit, nor did Broadcom identify any alleged prior art to any of the Patents-in-Suit.

37. Despite Monterey's repeated efforts—which have continued for well over three years—Broadcom still has not engaged in any meaningful discussions to end its infringement of the Patents-in-Suit. Indeed, despite Monterey's diligent efforts to arrange a meeting with Broadcom, Broadcom has refused to meet with Monterey. Instead, Broadcom continues to, directly and indirectly, knowingly, intentionally, and willfully infringe Monterey's patents.

COUNT ONE
INFRINGEMENT OF THE '753 PATENT

38. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

39. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '753 patent.

40. The '753 patent is valid and enforceable.

41. The '753 patent is directed to the field of microcontrollers and similar electronic devices, and more particularly to a system and method for controlling the drive strength of an input/output node in a microcontroller.

42. The '753 patent explains the disadvantages associated with then-conventional methods of controlling drive strength. Typically, those methods involved pulling an I/O node's voltage up, to device supply voltage, or down, to ground with a resistor. In some instances, a pull-up resistor or a pull-down resistor could be selected by a data bit in order to turn on or turn off the resistor's function. However, there are many instances when a simple on/off selection is insufficient to meet the needs of a dynamic environment. A changing voltage on an output pin can require a range of different drive strengths at different times.

43. The '753 patent overcame that disadvantage by teaching, among other things, a system and method for controlling the drive strength of an input/output node in a microcontroller that attains sufficient resolution to meet most foreseeable electronic environments in which an I/O pin will need to operate. Further, this is accomplished by elements that are manufacturable by current manufacturing methods and fit in existing device footprints.

44. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the '753 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of

equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products and/or methods covered by one or more claims of the '753 patent, including, by way of example and not limitation, the SAS3108, SAS3916, SAS3908, SAS3516, SAS3508, SAS3324, and SAS3316 product families; other Broadcom semiconductor devices, integrated circuits, and products with components that control drive strength; and all other Broadcom semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '753 Products").

45. As one non-limiting example, Broadcom infringes claim 1 of the '753 patent. For example, the Broadcom SAS3108 12Gb/s SAS RAID-on-Chip (ROC) is an electronic device containing an input/output node comprising:

a. an input/output pin (e.g., an I/O pin of the SAS3108);

b. a plurality of reconfigurably selectable pull-up resistors coupled to said pin (e.g., resistors with various widths and lengths that are selectable and pull-up to a voltage of the SAS3108); and,

c. a plurality of reconfigurably selectable pull-down resistors coupled to said pin (e.g., resistors with various widths and lengths that are selectable and pull-down to a voltage of the SAS3108),

d. wherein, said pull-up resistors and said pull-down resistors are reconfigurably selectable for activation by logic (e.g., logic signals and transistors of the SAS3108), and

e. wherein drive strength in said input/output node is controlled by selection of said pull-down resistors and said pull-up resistors (e.g., drive strength of I/O depends on selection of resistors in the SAS3108).

46. Broadcom has known of the '753 patent and its infringement of that patent since at least as early as May 23, 2018.

47. Broadcom, knowing its products infringe the '753 patent and with the specific intent for others to infringe the '753 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '753 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '753 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '753 patent. *See, e.g.*, https://www.broadcom.com/products/storage/raid-on-chip/sas-3108.

48. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '753 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '753 Products, which constitute a material part of the invention of the '753 patent, knowing the Accused '753 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/storage/raid-on-chip/sas-3108.

49. Monterey has sustained and is entitled to recover damages as a result of Broadcom's

past and continuing infringement.

50. Broadcom's infringement of the '753 patent has been knowing, deliberate, and willful, since at least as early as May 23, 2018, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '753 patent and that its conduct constituted and resulted in infringement of the '753 patent. And Monterey again identified the '753 patent and Broadcom's infringement thereof through communications, including on July 11, 2018; February 6, 2019; May 4, 2021; and yet again through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '753 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '753 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT TWO
INFRINGEMENT OF THE '640 PATENT

51. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

52. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '640 patent.

53. The '640 patent is valid and enforceable.

54. The '640 patent is directed to interconnection structures, including interlevel interconnection structures, devices containing these structures, and methods of making these

structures and devices.

55. The ’640 patent explains the disadvantages associated with prior art, which typically used fully enclosed contacts. Fully enclosed contacts suffered from disadvantages such as preventing the reduction of the size of semiconductor devices.

56. The ’640 patent overcame that disadvantage by teaching, among other things, formation of a semiconductor, comprising forming a hole through a first dielectric layer; followed by extending the hole through an etch-stop layer, to expose a first conducting layer. The thickness of the etch-stop layer is at least one-half the smallest line width of the first conducting layer. The ’640 patent teaches, among other things, that such an etch-stop layer on a lower conducting layer, where the thickness of the etch-stop layer is at least one half the smallest line width of the first conducting layer, prevents certain defects resulting from misalignment of the hole.

57. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the ’640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing (including importing products made by a patented process) in or into the United States without authorization products covered by one or more claims of the ’640 patent, including, but not limited to, products such as the BCM4360, BCM4352, BCM43526, BCM11140, BCM7542, BCM3471, BCM7542, BCM3472, BCM7552, BCM54380, BCM7574, BCM7582, BCM54382, BCM7358, BCM84128, BCM11140, BCM7592, BCM4707, BCM4708, BCM4709, BCM84753, BCM84784, BCM84756, BCM3325, BCM11311, BCM3322, BCM84758, BCM84780, BCM84754, PEX 8747, PEX 8724, PEX 8748, PEX 8732, PEX 8712, PEX 8716, XLP400 Series, BCM60321, PEX 8718, PEX 8713, PEX 8764, PEX 8733, PEX 8780, PEX 8750, PEX 8714, PEX 8725, PEX 8717, PEX 8749, PEX 8796, PEX 8734, BCM4335, BCM47531, XLP800 Series, XLP300 Series, Tomahawk 3,

Tomahawk 2, BCM56980, BCM56970, StrataXGS, BCM56892, BCM15K, BCM81181, BCM81358, BCM81141, BCM81356, BCM81328, BCM81188, BCM81330, BCM7218X, BCM81118, BCM81128, BCM81343, BCM81381, Broadcom Custom ASICS , BCM65450, BCM81724, BCM81724, Stingray™ PS1100R 100G PCIe, BCM958804A8041C, BCM958804A8040C, PS225, BCM958802A8044C, BCM958802A8048C, 16-nm PAM-4 PHYs, BCM58800, 16 nm 400G PH Y, BCM88280, Qumran2u, BCM88480, Qumran2a, BCM88820, Qumran2c, BCM88800, Jeircho2c, StrataDNX, BCM88690, Jericho2, Trident 3, StrataXGS, BCM56870, and BCM56873 product families; all other Broadcom ethernet switches, infrastructure switches, PHY, Serializer/Deserializer (SerDes), ASICs, Wi-Fi chips, and other processors manufactured at technology nodes of 40nm and smaller, including 16nm; all other Broadcom 40 nm and smaller process nodes, including the 16nm process node, semiconductor devices, integrated circuits, and products; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '640 Products").

58. As one non-limiting example, Broadcom infringes claim 1 of the '640 patent. For example, the process used to produce Broadcom's BCM4360 semiconductor device performs the steps of:

a. forming a hole through a first dielectric layer (e.g., silicon dioxide layer); followed by

b. extending the hole through an etch-stop layer (e.g., silicon nitride layer), to expose a first conducting layer (e.g., transistor gate);

c. wherein the thickness of the etch-stop layer (e.g., silicon nitride layer) in the smallest dimension is at least one-half the smallest line width of the first conducting layer (e.g., transistor gate).

59. Broadcom has known of the ’640 patent and its infringement of that patent since at least as early as May 23, 2018.

60. Broadcom, knowing its products infringe the ’640 patent and with the specific intent for others to infringe the ’640 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the ’640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import (including import products made by a patented process) in or into the United States without authorization the Accused ’640 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom’s website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom’s products that infringe the ’640 patent. *See, e.g.*, https://www.broadcom.com/products/wireless/wireless-lan-infrastructure/bcm4360 and https://www.broadcom.com/products/wireless/wireless-lan-infrastructure/bcm4335. Additional non-limiting examples include the materials found at https://www.prnewswire.com/news-releases/broadcom-launches-first-gigabit-speed-80211ac-chips---opens-2012-ces-with-5th-generation-5g-wi-fi-breakthrough-136728148.html.

61. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the ’640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused ’640 Products, which constitute a material part of the

invention of the '640 patent, knowing the Accused '640 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/wireless/wireless-lan-infrastructure/bcm4360.

62. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

63. Broadcom's infringement of the '640 patent has been knowing, deliberate, and willful, since at least as early as May 23, 2018, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '640 patent and that its conduct constituted and resulted in infringement of the '640 patent. And Monterey continued to identify the '640 patent and Broadcom's infringement thereof through communications, including on July 11, 2018, February 6, 2019, May 4, 2021; and yet again through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '640 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '640 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT THREE
INFRINGEMENT OF THE '987 PATENT

64. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

65. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '987 patent.

66. The '987 patent is valid and enforceable.

67. The '987 patent is directed to electronic circuits and, more particularly, to low voltage, high gain current/voltage sense amplifier circuits with improved read access time.

68. The '987 patent explains the disadvantages associated with prior sense amplifier designs, which failed to meet important design specifications as technological trends progressed toward higher speeds, smaller geometries, and lower power supply voltages. For example, conventional designs often failed to meet the fast read access times specified for high-speed, low voltage memory devices. In addition, design problems associated with conventional sense amplifiers only worsened as circuit geometries continued to scale to smaller and smaller sizes.

69. The '987 patent overcame that disadvantage by teaching, among other things, a sense amplifier circuit with at least a sensing stage and an amplifying stage. The sensing stage may include a pair of input transistors, a pair of current mirror circuits, a pair of cross-coupled transistors and a pair of output nodes. The pair of input transistors may be coupled for generating a pair of differential reference currents in response to a pair of differential input signals supplied to input nodes of the sensing stage. The pair of current mirror circuits may be coupled for mirroring the pair of differential reference currents to generate a pair of differential voltages upon the output nodes of the sensing stage. The pair of cross-coupled transistors may be coupled for amplifying the pair of differential voltages supplied to the output nodes. The sensing stage described in the '987 patent improves upon earlier designs by providing increased amplification, speed, and accuracy.

70. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the '987 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of

equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '987 patent, including, but not limited to, products such as the BCM4708, BCM4707, BCM4709, and BCM5301; other Broadcom semiconductor devices, integrated circuits, and products using current and voltage sense amplifying through input transistors and current mirrors; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '987 Products").

71. As one non-limiting example, Broadcom infringes claim 1 of the '987 patent. For example, the Broadcom BCM4708 Dual-Band Wireless Network Processor contains:

a. a pair of input transistors (e.g., a pair of PMOS transistors of the BCM4708) coupled for generating a pair of differential reference currents (e.g., differential reference currents of the BCM4708) in response to a pair of differential input signals (e.g., input signals to a comparator of the BCM4708) supplied to the sense amplifier circuit;

b. a pair of current mirrors coupled for amplifying and mirroring the pair of differential reference currents (e.g., transistor current mirrors of the BCM4708); and

c. a pair of output nodes coupled for receiving a pair of differential voltages corresponding to the amplified, mirrored currents (e.g., output nodes in the sense amplifier circuitry of the BCM4708).

72. Broadcom has known of the '987 patent and its infringement of that patent since at least as early as May 4, 2021.

73. Broadcom, knowing its products infringe the '987 patent and with the specific intent for others to infringe the '987 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '987 patent under 35 U.S.C. § 271, either literally and/or

under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '987 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '987 patent. *See, e.g.*, https://www.broadcom.com/support and https://www.broadcom.com/products/wireless/wireless-lan-infrastructure/bcm4707-4708-4709.

74. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '987 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '987 Products, which constitute a material part of the invention of the '987 patent, knowing the Accused '987 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/wireless/wireless-lan-infrastructure/bcm4707-4708-4709.

75. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

76. Broadcom's infringement of the '987 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '987 patent and that its conduct constituted and resulted in

infringement of the '987 patent. And Monterey again identified the '987 patent and Broadcom's infringement thereof, including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '987 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '987 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FOUR
INFRINGEMENT OF THE '873 PATENT

77. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

78. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '873 patent.

79. The '873 patent is valid and enforceable.

80. The '873 patent is directed to a parallel processing apparatus dynamically switching over a circuit configuration.

81. The '873 patent describes an exemplary reconfigurable circuit that included processing elements ("PE's"), a configuration memory stored with configuration data that was used to set the types of the operations executed by the PEs, and a network that connected the plurality of PEs and the configuration memory to each other.

82. The '873 patent further explains that conventional circuits presented at least four

problems. First, operation and configuration of the circuit took a longer amount of time because the reconfigurable circuit loaded the configuration data designating the configuration of the whole circuit into the PEs and the selectors within the network from the configuration memory. Second, during the reconfiguration of the circuit, the reconfigurable circuit did not process the operation target data. Hence, a clock cycle elapsed without data processing. Third, the configuration data designating the whole circuit was stored in the configuration memory. The configuration data therefore had a comparatively large data size. This led to issues concerning the time required for accessing the stored data. Fourth, and similarly, the comparatively large data size led to long periods of time required for loading the data.

83. Recognizing these issues, the '873 patent teaches, among other things, a parallel processing apparatus dynamically switching over a circuit configuration comprising a plurality of computing elements, a network establishing connections between the plural computing elements, a plurality of selectors provided corresponding to the plurality of computing elements within the network and controlling as to whether the computing element is connected to the network or not, first local memories stored with data used for the operations by the computing elements and data designating the operations, and connected to the respective computing elements, and second local memories stored with data designating connections by the selectors, and connected to the respective selectors. The '873 invention led to numerous benefits, including the ability for a PE to access the configuration memory and load the data at a high speed, and the ability to execute the same parallel processing with the data having a smaller data size than in prior systems.

84. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the '873 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or

into the United States without authorization products covered by one or more claims of the '873 patent, including, but not limited to, products that use a parallel processing apparatus, such as the BCM88690, BCM88850, BCM88820, BCM88800, BCM88480, BCM88280, Jericho2, Jericho2c, Jericho2c+, Qumran2u, Qumran2c, Qumran2a, and other products in the StrataDNX product line; other Broadcom products including an Elastic Pipe™ or programmable pipeline; and all other semiconductor devices, integrated circuits, and products with a similar parallel processing apparatus (collectively, "the Accused '873 Products").

85. As one non-limiting example, Broadcom infringes claim 1 of the '873 patent. For example, the BCM88690 semiconductor device includes a parallel processing apparatus dynamically switching over a circuit configuration comprising:

a. a plurality of computing elements (e.g., elements of the programmable elements matrix and pipeline);

b. a network (e.g., pipeline) establishing connections between said plural computing elements;

c. a plurality of selectors (e.g., programmable connections) provided corresponding to said plurality of computing elements within said network and controlling as to whether said computing element is connected to said network or not;

d. first local memories (e.g., modular database) stored with data used for operations by said computing elements (e.g., elements of the programmable elements matrix and pipeline) and data designating the operations, and connected to said respective computing elements; and

e. second local memories (e.g., field groups) stored with data designating connections by said selectors (e.g., programmable connections), and connected to said respective selectors.

86. Broadcom has known of the '873 patent and its infringement of that patent since at least as early as May 4, 2021.

87. Broadcom, knowing its products infringe the '873 patent and with the specific intent for others to infringe the '873 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '873 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '873 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '873 patent. *See, e.g.*, https://www.broadcom.com/products/ethernet-connectivity/switching/stratadnx/bcm88690 and https://docs.broadcom.com/docs/88690-88800-88480-88280-Packet-Processing-Programming-Guide. Broadcom also produced video content concerning the Jercicho2 chip. *See* https://vimeo.com/showcase/6787876/video/391575681.

88. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '873 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing

in or into the United States the Accused '873 Products, which constitute a material part of the invention of the '873 patent, knowing the Accused '873 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/ethernet-connectivity/switching/stratadnx/bcm88690.

89. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

90. Broadcom's infringement of the '873 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '873 patent and that its conduct constituted and resulted in infringement of the '873 patent. And Monterey again identified the '873 patent and Broadcom's infringement thereof including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '873 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '873 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FIVE
INFRINGEMENT OF THE '387 PATENT

91. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

92. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '387 patent.

93. The '387 patent is valid and enforceable.

94. The '387 patent is generally directed to devices and methods that provide communication paths between host devices and target devices, and more particularly to devices and methods for communicating between a target device and multiple hosts.

95. The '387 patent explains that communication protocols allowed a host computing device to communicate with one or more target devices. But communication protocols required particular communication formats and sequences between a host and a target device. In order for the one host to access the target device it needed to do so through the second host device.

96. The '387 patent teaches, among other things, a method comprising the steps of determining whether a first host device is accessing a target device using a first communications protocol; blocking access to the target device from the first host device, while continuing to respond to communications received from the first host; receiving a token from the second host device, the token indicating a communications endpoint, a communications direction, and a second communications protocol; and establishing communications between the second host device and the target device using the communications endpoint, the communications direction, and the second communications protocol, wherein the second communications protocol is different than the first communications protocol. For example, the method of the '387 patent results in communications with hosts that can be direct, and not pass through another host. Still further, such an arrangement can allow a system to accommodate different types of hosts (i.e., hosts that communicate according to different protocols), without having to alter a target device.

97. Broadcom has directly infringed, and continues to directly infringe, one or more

claims of the '387 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '387 patent, including, but not limited to, products that use any version of DMTF's NC-SI DSP0222 specification, including but not limited to versions 1.0.0, 1.0.0.a, 1.0.1, and 1.1.0, such as the BCM5718 family, and the BCM57xx, BCM57xxx, BCM5717, BCM5718, BCM5709C, BCM5719, BCM5720, BCM57810S, BCM57712, BCM57452, BCM957508-N2100G, BCM957414M4142C, BCM57414, 10/100/1000Base-T, NetExtreme™, and NetLink™ product families; other Broadcom semiconductor devices, integrated circuits; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '387 Products").

98. As one non-limiting example, Broadcom infringes claim 8 of the '387 patent. For example, the BCM5718 semiconductor device practices a method including the steps of:

a. determining whether a first host device (e.g., NC-SI host) is accessing a target device (e.g., controller) using a first communications protocol (e.g., NC-SI);

b. blocking access to the target device (e.g., controller) from the first host device (e.g., NC-SI host) when the first host device is not accessing the target device and a second host device (e.g., PCIe host) is accessing the target device, while continuing to respond to communications received from the first host device requesting to access the target device;

c. receiving a token (e.g, ring control block) from the second host device, the token indicating a communications endpoint, a communications direction, and a second communications protocol; and

d. establishing communications between the second host device and the target device (e.g, between the controller and the PCIE host) using the communications endpoint, the

communications direction, and the second communications protocol, wherein the second communications protocol is different than the first communications protocol (e.g, different than NC-SI).

99. Broadcom has known of the '387 patent and its infringement of that patent since at least as early as May 4, 2021.

100. Broadcom, knowing its products infringe the '387 patent and with the specific intent for others to infringe the '387 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '387 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '387 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '387 patent. *See, e.g.*, https://www.broadcom.com/products/ethernet-connectivity/network-ics and https://docs.broadcom.com/doc/1211168564147. Additional non-limiting examples include the materials found on Broadcom's websites at https://docs.broadcom.com/doc/INGSRV170-CDUM100-R. Broadcom is also a co-chair of the working group responsible for the NC-SI specification.

101. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '387 patent under 35 U.S.C. § 271, either literally and/or

under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '387 Products, which constitute a material part of the invention of the '387 patent, knowing the Accused '387 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://docs.broadcom.com/doc/1211168564147.

102. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

103. Broadcom's infringement of the '387 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '387 patent and that its conduct constituted and resulted in infringement of the '387 patent. And Monterey again identified the '387 patent and Broadcom's infringement thereof including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '387 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '387 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT SIX
INFRINGEMENT OF THE '249 PATENT

104. Monterey incorporates by reference the preceding paragraphs as if fully set forth

herein.

105. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '249 patent.

106. The '249 patent is valid and enforceable.

107. The '249 patent is generally directed to memory systems, and more specifically to asynchronous memory access queuing.

108. The '249 patent teaches, among other things, a method comprising pinning memory buffers in a managed memory environment using a recursive function call, issuing data transfer requests to a peripheral device, and asynchronously accessing the pinned buffers in response to the requests. For example, the method of the '249 patent results in increased available memory for the processing systems, reduction of memory leakage, and more efficient performance of applications.

109. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the '249 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '249 patent, including, but not limited to, all Broadcom products using fair adaptive dynamic threshold resource management, such as the BCM88690, BCM88850, BCM88820, BCM88800, BCM88480, BCM88280, Jericho2, Jericho2c, Jericho2c+, Qumran2u, Qumran2c, Qumran2a, and other products in the StrataDNX product line; other Broadcom products including fair adaptive dynamic threshold resource management; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '249 Products").

110. As one non-limiting example, Broadcom infringes claim 1 of the '249 patent. For example, the BCM88690 performs the method comprising:

a. pinning memory buffers (e.g., not evacuating a portion of the queue to the DRAM) in a managed memory environment by using a recursive function call to allow a variable number of memory buffers to be dynamically pinned (e.g., fair adaptive dynamic threshold);

b. issuing data transfer requests (e.g., SRAM-to-DRAM credit) to a peripheral device (e.g., memory), each request corresponding to at least one of the pinned memory buffers; and

c. asynchronously accessing (e.g., different clock rate) at least one of the pinned buffers in response to the requests.

111. Broadcom has known of the ’249 patent and its infringement of that patent since at least as early as May 4, 2021.

112. Broadcom, knowing its products infringe the ’249 patent and with the specific intent for others to infringe the ’249 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the ’249 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused ’249 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom’s website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom’s products that infringe the ’249 patent. *See, e.g.*, https://www.broadcom.com/products/ethernet-connectivity/switching/stratadnx/bcm88690 and https://docs.broadcom.com/docs/88690-88800-

88480-88280-Packet-Processing-Programming-Guide. Broadcom also produced video content concerning the Jercicho2 chip. *See* https://vimeo.com/showcase/6787876/video/391575681.

113. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '249 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '249 Products, which constitute a material part of the invention of the '249 patent, knowing the Accused '249 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/ethernet-connectivity/switching/stratadnx/bcm88690.

114. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

115. Broadcom's infringement of the '249 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '249 patent and that its conduct constituted and resulted in infringement of the '249 patent. And Monterey again identified the '249 patent and Broadcom's infringement thereof, including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '249 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '249 patent entitles

Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT SEVEN
INFRINGEMENT OF THE '776 PATENT

116. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

117. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '776 patent.

118. The '776 patent is valid and enforceable.

119. The '776 patent is generally directed to memory systems and in particular, to systems and methodologies that can facilitate the utilization of a memory module that can operate in response to instructions and data received from an external processor.

120. The '776 patent explains the disadvantages associated with prior memory devices. Conventional memory devices performed limited functions such as storing, retrieving, and providing data associated with the memory device. Typically, a host processor could request data from the memory device and could process and/or display the data, as desired by the host processor. But, it was desirable to offload certain tasks, functions, and/or operations to the memory so that the memory could execute the tasks, functions, and/or operations on the data and provide a result to the host without providing the host with the data or associated data that could be associated with the result.

121. The '776 patent overcame the disadvantages of conventional memory devices by teaching, among other things, systems, devices, and methods that can facilitate employing a memory component communicatively connected to a host. The memory component can receive data, instructions, information, etc., from the host related to a task(s), function(s), and/or operation(s) the host is offloading to the memory component, and the memory component can perform such task(s),

function(s), and/or operation(s), and can transmit a result(s) associated therewith to the host, which can utilize the result(s) as desired. The memory component can perform such task(s), function(s), and/or operation(s), without certain sensitive information being provided to the host or other entities.

122. Broadcom has directly infringed, and continues to directly infringe, one or more claims of the '776 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '776 patent, including, but not limited to, the BCM5820X, BCM5810X, BCM5830X, and BCM589X families of Broadcom secure processors; other Broadcom semiconductor devices, systems, integrated circuits, and products with a Broadcom secure processor and/or microcontroller; and all other Broadcom semiconductor devices, systems, integrated circuits, and products with similar infringing technology (collectively, "the Accused '776 Products").

123. As one non-limiting example, Broadcom infringes claim 1 of the '776 patent. For example, the Broadcom StrataGX BCM5820 Secure Microcontroller includes a system that comprises:

a. an external electronic memory component that comprises a plurality of memory locations (e.g., secure memory of the BCM5820) and facilitates storage of data in at least a portion of the plurality of memory locations (e.g., storage of data in the secure memory of the BCM5820), wherein the external electronic memory component is configured to be external from and communicatively connected to a host component (e.g., the BCM5820 is external to a host), and to receive a request to perform at least one of a task, a function, or an operation (e.g., the BCM5820 receives a request), which is offloaded to the external electronic memory component by the host component (e.g., the host offloads the task, function, or operation to the BCM5820);

and

b. an optimized controller component (e.g., the microcontroller of the BCM5820) configured to be part of the external electronic memory component (e.g., the microcontroller is part of the BCM5820) wherein, in response to the request, the optimized controller component is configured to perform the at least one of the task, the function, or the operation (e.g., microcontroller of the BCM5820 performs the task, function, or operation), and wherein, in performance of the at least one of the task, the function, or the operation, the optimized controller component is configured to access a subset of the data stored in the portion of the plurality of memory locations in the external electronic memory component (e.g., the microcontroller accesses a subset of data in the secure memory of the BCM5820), perform the at least one of the task, the function, or the operation on the subset of the data to facilitate generation of result data that is based at least in part on the subset of the data (e.g., microcontroller of the BCM5820 generates a result based on the subset of data), and transmit the result data to a host memory of the host component without transmission of the subset of the data to the host component and without allowance of access of the subset of the data by the host component (e.g., microcontroller of the BCM5820 transmits the result to a host without transmitting the subset of data to the host and without allowing the host to access the subset of data).

124. Broadcom has known of the ’776 patent and its infringement of that patent since at least as early as May 4, 2021.

125. Broadcom, knowing its products infringe the ’776 patent and with the specific intent for others to infringe the ’776 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the ’776 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its

customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '776 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '776 patent. *See, e.g.*, https://www.broadcom.com/products/embedded-and-networking-processors/secure and https://www.broadcom.com/products/embedded-and-networking-processors/secure/bio-safe. Additional non-limiting examples include the materials found at https://docs.broadcom.com/ docs/BIO-SAFE-UG.

126. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '776 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '776 Products, which constitute a material part of the invention of the '776 patent, knowing the Accused '776 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/embedded-and-networking-processors/secure.

127. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

128. Broadcom's infringement of the '776 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the

date on which Broadcom knew of the '776 patent and that its conduct constituted and resulted in infringement of the '776 patent. And Monterey again identified the '776 patent and Broadcom's infringement thereof including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '776 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '776 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT EIGHT
INFRINGEMENT OF THE '303 PATENT

129. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

130. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '303 patent.

131. The '303 patent is valid and enforceable.

132. The '303 patent is generally directed to memory systems and in particular, to systems and methodologies that can facilitate the utilization of a memory module that can operate in response to instructions and data received from an external processor.

133. The '303 patent explains the disadvantages associated with prior memory devices. Conventional memory devices performed limited functions such as storing, retrieving, and providing data associated with the memory device. Typically, a host processor could receive data from the

memory device and could process and/or display the data, as desired by the host processor. But, it was desirable to offload certain tasks, functions, and/or operations to the memory so that the memory could execute the tasks, functions, and/or operations on the data and provide a result to the host without providing the host with the data or associated data that could be associated with the result.

134. The ’303 patent overcame the disadvantages of conventional memory devices by teaching, among other things, systems, devices, and methods that can facilitate employing a memory component communicatively connected to a host. The memory component can receive data, instructions, information, etc., from the host related to a task(s), function(s), and/or operation(s) the host is offloading to the memory component, and the memory component can perform such task(s), function(s), and/or operation(s), and can transmit a result(s) associated therewith to the host, which can utilize the result(s) as desired. The memory component can perform such task(s), function(s), and/or operation(s), without certain sensitive information being provided to the host or other entities.

135. Broadcom has directly infringed, and continues to directly infringe, one or more claims, including at least claim 1, of the ’303 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the ’303 patent, including, but not limited to, the BCM5820X, BCM5810X, BCM5830X, and BCM589X families of Broadcom secure processors; other Broadcom semiconductor devices, systems, integrated circuits, and products with a Broadcom secure processor and/or microcontroller; and all other Broadcom semiconductor devices, systems, integrated circuits, and products with similar infringing technology (collectively, “the Accused ’303 Products”).

136. Broadcom has known of the ’303 patent and its infringement of that patent since at least as early as May 4, 2021.

137. Broadcom, knowing its products infringe the '303 patent and with the specific intent for others to infringe the '303 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '303 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '303 Products, as well as products containing the same. Broadcom knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on Broadcom's website at www.broadcom.com. For example, Broadcom provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of Broadcom's products that infringe the '303 patent. *See, e.g.*, https://www.broadcom.com/products/embedded-and-networking-processors/secure and https://www.broadcom.com/products/embedded-and-networking-processors/secure/bio-safe. Additional non-limiting examples include the materials found at https://docs.broadcom.com/docs/BIO-SAFE-UG.

138. Broadcom has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '303 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '303 Products, which constitute a material part of the invention of the '303 patent, knowing the Accused '303 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, https://www.broadcom.com and https://www.broadcom.com/products/embedded-and-networking-processors/secure.

139. Monterey has sustained and is entitled to recover damages as a result of Broadcom's past and continuing infringement.

140. Broadcom's infringement of the '303 patent has been knowing, deliberate, and willful, since at least as early as May 4, 2021, the date of Monterey's letter to Broadcom and therefore the date on which Broadcom knew of the '303 patent and that its conduct constituted and resulted in infringement of the '303 patent. And Monterey again identified the '303 patent and Broadcom's infringement thereof, including through this complaint. Broadcom nonetheless has committed—and continues to commit—acts of direct and indirect infringement despite knowing that its actions constituted infringement of the valid and enforceable '303 patent, despite a risk of infringement that was known or so obvious that it should have been known to Broadcom, and/or even though Broadcom otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. Broadcom's conduct in light of these circumstances is egregious. Broadcom's knowing, deliberate, and willful infringement of the '303 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

RELIEF REQUESTED

Wherefore, Monterey respectfully requests that this Court enter judgment against Broadcom as follows:

A. that Broadcom has infringed each of the Patents-in-Suit;

B. that Broadcom's infringement of each Patent-in-Suit is and has been willful;

C. that Monterey be awarded damages adequate to compensate it for the patent infringement that has occurred, together with pre-judgment interest, post-judgment interest, and costs;

D. that Monterey be awarded an accounting and additional damages for any infringing sales not presented at trial;

E. that Monterey be awarded all other damages permitted by 35 U.S.C. § 284, including without limitation increased damages up to three times the amount of compensatory damages found;

F. that this is an exceptional case and that Monterey be awarded its costs and reasonable attorneys' fees incurred in this action as provided by 35 U.S.C. § 285;

G. that Broadcom as well as its officers, directors, agents, employees, representatives, attorneys, and all others acting in privity or in concert with it, its subsidiaries, divisions, successors and assigns be permanently enjoined from further infringement of each of the Patents-in-Suit;

H. that, in the event a permanent injunction preventing further infringement of each of the Patents-in-Suit is not granted, Monterey be awarded a compulsory ongoing licensing fee for any such further infringement; and

I. such other relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Monterey hereby demands trial by jury on all claims and issues so triable.

Dated: May 28, 2021

By: */s/ Charles Everingham IV*

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